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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,420	03/02/2004	Mark O. Scates	10437.0073.NPUS01	2419
23369	7590	11/21/2006	EXAMINER	
HOWREY LLP C/O IP DOCKETING DEPARTMENT 2941 FAIRVIEW PARK DRIVE, SUITE 200 FALLS CHURCH, VA 22042-7195			VALENROD, YEVGENY	
			ART UNIT	PAPER NUMBER
			1621	

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/708,420

Applicant(s)

SCATES ET AL.

Examiner

Yevgeny Valenrod

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 10-12, 14-20, 22-27, 29-31, 33-37 and 39-41 is/are rejected.
- 7) ☒ Claim(s) 5, 9, 13, 21, 28, 32 and 38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1621

### **DETAILED ACTION**

The Terminal Disclaimer filed on 9/8/06 overcomes the provisional obviousness-type double patenting rejection of claims 1-41.

Amendments to claims 16, 26 and 31 overcome the rejection of the said claims as being indefinite under 35 USC 112. Rejection of claims 16, 26 and 31 under 35 USC 112 is withdrawn.

Rejection of claims 1-4, 2-8, 10-12, 14-20, 22-27, 29-31, 39-41 under 35 USC 103(a) made over Singh et al (US 6,143,930) in view of Allison (Organic Chemistry Laboratory II. Chemistry 3712/3612, spring 2003 Edition, University of Arkansas) is maintained and is made final. The text of the 35 USC 103(a) rejection is quoted below.

### ***Rejection 35 USC 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-8, 10-12, 14-20, 22-26, 27, 29-31, 33-37, 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al. (US 6,143,930) in view of

Art Unit: 1621

Allison (Organic Chemistry Laboratory II, Chemistry 3712/3612, spring 2003 Edition, department of Chemistry and Biochemistry University of Arkansas, pages 1-35)

The instant application claims a method of removal of permanganate reducing compounds (PRC) from methanol carbonylation process stream. Limitations recited in the claims include: multiple extractions, removal of acetaldehyde and a step of forming dimethyl ether in the last distillation column.

*Scope of prior art*

Singh et al teach a method of removing permanganate reducing compounds from a carbonylation process stream. In their process, acetaldehyde and other PRCs are removed from the process stream (column 11, lines 46-48 for acetaldehyde). Singh et al. also teach subjecting the process stream from the top of the last distillation column to a condensation followed by an extraction (column 11, line 45).

*Ascertaining the difference between prior art and the instant claims*

Singh et al teach directing the iodide rich stream to the extractor for further purification. However, they do not specifically mention performing two consecutive extraction steps as applicant claims in independent claims 1, 17 and 30. They also do not teach forming dimethyl ether in the last distillation column.

*Secondary reference*

Allison teaches that multiple extractions give more product or purer product or both, when compared to a single extraction (see middle of page 28).

*Obviousness*

A person of ordinary skill in the art wishing to improve the separation of methyl iodide from acetaldehyde would be motivated to repeat the extraction taught by Singh et al. Extracting multiple times is very common in the art, as shown by Allison, and the person attempting to do so would have a reasonable expectation of succeeding in improving the separation by performing additional extractions.

According to the applicant dimethyl ether is formed when water is added to the distillation column (page 33 lines 10-11 of the specification). Singh et al. teach that water is already present in the said distillation (column 9 lines 48-50) therefore one of ordinary skill in the art would expect dimethyl ether to be formed in the process described by Singh et al and the said process would provide dimethyl ether to the second overhead and subsequently to the extractors, thereby increasing the amount of methyl iodide removed from the aqueous streams.

***Response to Applicants Remarks***

In Remarks filed on 9/18/06, the applicant argues that adding the second distillation to the process taught by Singh et al. is not obvious. On page 8, lines 8-9, applicant alleges that combining Allison and Singh lacks motivation. Multiple extractions are common in the art and are well recognized as an effective technique of performing purification. Allison is used here as a reference which teaches that the multiple extraction yields better results when compared to a single extraction, which is the motivation for performing the multiple extraction.

Art Unit: 1621

Applicant argues that multiple extraction require additional solvent, equipment and energy expenditures (page 8, lines 10-11). Once again, according to Allison and as well known in the art, multiple extractions furnish better results. Additional expenditures the applicant refers to provide additional profit by increasing the efficiency of the process described by Singh and are therefore not considered as a valid argument to show non-obviousness. By applicants' own admission, the concentration of methyl iodide in the process of Singh is higher (2%) than in the process where an additional extraction is performed (1.8%, without the addition of dimethyl ether) (page 8, lines 13-15).

Applicant also argues that presence of dimethyl ether (DME) improves the yield of the desired compound. While numerous methods of introducing additional dimethyl ether to the process are described in the specification, none of the said methods or the dimethyl ether itself is included as limitations in the independent claims. Since this argument does not address the limitations of the rejected claims, it not considered.

In light of the above argument, rejection under 35 USC 103(a) of claims 1-4, 6-8, 10-12, 14-20, 22-27, 29-31, 33-37 and 39-41 is maintained and is **made final**.

### ***Claim Objections***

Claims 5, 9, 13, 21, 28, 32 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

- Claims 1-41 are pending.
- Claims 1-4, 6-8, 10-12, 14-20, 22-27, 29-31, 33-37 and 39-41 are rejected.
- Claims 5, 9, 13, 21, 28, 32 and 38 are objected to.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yevgeny Valenrod whose telephone number is 571-272-9049. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

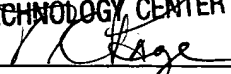
Art Unit: 1621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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